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Humboldtstraße 1 · Ruf: 20191 / Apparat 213

Professor Dr. Joshua Lederberg
University of Wisconsin
College of Agriculture
Department of Genetics
Madison 6 / Wisc.-U.S.A.

Dear Professor Lederberg:

Thank you very much for your letter of December 12 and for your kind invitation to visit your laboratory. I should very much like to continue my work there and I trust that a collaboration might be successful.

I beg to enclose the summary of a report I gave in 1954 on the development of the star forms. Apart from the publications mentioned in my manuscript I have found scarcely any notice on the sexual process of bacteria. There are many statements on a life cycle, particularly for rhizobia (BISSET, K.A. or THORNTON, H.G. and others), or on chromatine fusion in bacteria cells, but most of them are more or less hypotetic and did not stand the proof. However, it may be possible that POTTHOFF, H. (1924) really has noticed sexual stages.

Your observations on conjugation of E.coli have been highly interesting. It has to be supposed that the various bacteria strains show different sexual modes. Just now I am working with a bacterial strain newly isolated from soil, and it very much looks as if conjugation does occur. However, I cannot give further details now, the experiments not being finished yet.

It has been very kind of you to send me your paper, and I shall prove your oil chamber for star isolation and permanent observation of their development. The test organisms I use in my experiments need sufficient supply of oxygen for their sexual process, and I am afraid that the paraffin-oil might interrupt air diffusion.- Up to now I have not been able to follow the complete developmental cycle of a single star in the slide-chamber on blood medium. My results are based 1. on reconstruction of stages from mass cultures on blood medium, 2. on combination of different developmental stages from single stars, studied in the slide-chamber on blood medium, and 3. on permanent observations of the behavior of the different stages from mass cultures after transmission from blood medium to a substrat favourable to vegetative development (Möhren-Salep-Agar) in the slide-chamber.

Within a few days I shall send you some bacteria strains which -judging from my own experience- allow easily to follow the development of the sexual cycle on blood medium. If you would send me in return a subculture of crossable strains of E.coli K-12 as offered in your letter, I should be very much obliged to you.

I quite agree with the experimental program you suggest for my material, and I trust we shall be successful. As the zygotes are rather big, there will probably be not great difficulties in isolating them by micromanipulation. The low rate of germination of the zygotes might be a problem, but I hope that my running experiments to increase the germination rate will be successful.

The curriculum vitae asked for is annexed. Furthermore I have asked Professor Dr. BOGEN, head of the Botanic Department, and Professor Dr. BÖTTGER, head of the Zoological Department of the Technical University, to send you letters of reference which you may make use of. Perhaps it will be of interest to you to learn that I have been in contact these last years with Professor Dr. P.W. WILSON and with Professor Dr. O.N. ALLEN on the problem of nitrogen fixation by rhizobium.

As to your suggestion about my coming to Madison in the middle of 1956, I suppose there will be no difficulties for me to take leave for about a year's time. However, as no salary will be payed during my absence from Brunswick, I first have to make arrangements not only for myself but for the support of my family (wife and a girl of 4 years) as well. Besides the question of the passage has to be settled. I intend to apply to the Fulbright Commission for passage expenses and to the Deutsche Forschungsgemeinschaft for a Scholarship. You would oblige me for kindly supporting my applications in due time. I shall inform you as soon as they have been posted.

I hope that I have done everything that might be done for the moment to set things going.

Very sincerely Yours,

